

CLAIMS

1. An antibody which binds to a peptide consisting of SEQ ID NO.: 2 or SEQ ID NO.: 6.

2. The antibody of Claim 1, wherein said antibody is a monoclonal antibody.

3. The antibody of Claim 1, wherein said antibody is a polyclonal antibody.

4. The antibody of Claim 1, wherein said antibody is produced by hybridoma H2-8 (CNCM n° I-2338 filed on October 21, 1999).

5. A DNA sequence encoding a peptide consisting of SEQ ID NO.: 2 or SEQ ID NO.: 6.

6. A method of detecting the presence or activity of IL-2R, wherein said IL-2R is measured by:

- a) contacting (1) a biological sample from a mammal in which the presence or activity of said IL-2R is suspected with (2) a peptide which binds to the antibody of Claim 1 under the conditions that allow binding of said IL-2R to said peptide to occur; and
- b) detecting whether binding has occurred between said IL-2R from said sample and the peptide which binds to the antibody of Claim 1.

7. A method for inhibiting the activity of an IL-2R comprising contacting said IL-2R with an amount of the peptide which binds to antibody of Claim 1 sufficient to inhibit binding of IL-2 to said IL-2R under conditions that allow binding of said peptide to said IL-2R to occur.

8. A method of inhibiting the activity of an IL-2R comprising contacting said IL-2R with an amount of the antibody of Claim 1 sufficient to inhibit binding of IL-2 to said IL-2R under conditions that allow binding of said peptide to said IL-2R to occur.

9. A method for inducing in a patient selected useful activities of IL-2 comprising administering to said patient an amount of a peptide comprising SEQ ID NO:2 or SEQ ID NO:6 sufficient to induce said useful activities.

10. A vector containing the DNA sequence of Claim 5.

11. A method for treating a patient deficient in IL-2 activity, comprising administering to said patient the vector of Claim 10.

12. The method of Claim 9, further comprising administering in  
5 admixture with the peptide a cytokine.

13. The method of Claim 12 wherein the cytokine is IL-2, IL-4, IL-9,  
IL-7 or IL-15.

14. The method of claim 12 wherein  $1 \times 10^6$  international units of IL-2  
is administered per injection.

10 15. A peptide, which is IP130, having SEQ ID NO.: 2 or a homologous sequence thereof which differs from SEQ ID NO.: 2 by one or more conservative or non-conservative changes, wherein said homologous sequence exhibits substantially the same activity or binding characteristics or both as SEQ ID NO.: 2.

15 16. A peptide, which is IP131 Asp 20 → Lys, having SEQ ID NO.: 6 or a homologous sequence thereof which differs from SEQ ID NO.: 6 by one or more conservative or non-conservative changes, wherein said homologous sequence exhibits substantially the same activity or binding characteristics or both as SEQ ID NO.: 6.

17. The peptide of Claim 15, which is IP 130, having SEQ ID NO.: 2 or SEQ ID NO.: 4.

20 18. The peptide of Claim 16, which is IP131 Asp 20 → Lys, having SEQ ID NO.: 6 or SEQ ID NO.: 8.

19. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO.: 6, having a conservative change of non-polar R-groups by other non-polar R groups in amino acids thereof.

25 20. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO:6, having a conservative change of uncharged polar R groups by other uncharged polar R groups in amino acids thereof.

21. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO.: 6, having a conservative change of charged polar R groups by other charged polar R groups in amino acids thereof.

5 22. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO.: 6, wherein Lys is substituted for Arg, or vice versa so that a positive charge is maintained.

23. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO.: 6, wherein Glu is substituted for Asp, or vice versa so that a negative charge is maintained.

10 24. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO.: 6, wherein Ser is substituted for Thr, such that a free-OH group is maintained.

15 25. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO.: 6, wherein Gln is substituted for Asn such that a free-NH<sub>2</sub> group is maintained.

26. The peptide of Claim 15 or Claim 16, which is a homologous sequence of SEQ ID NO.: 2 or SEQ ID NO.: 6, wherein said activity comprises induction of SHC phosphorylation; or induction of the SHC/MAPK pathway.